EXHIBIT 3
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LD v UBH

Expert Report

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CONFIDENTIAL

1. INTRODUCTION

1.1. The purpose of this report to provide an opinion in the case of LD v UBH as it relates to the process used to determine allowable charges for out-of-network provision of extensive outpatient alcohol and drug abuse treatment services (HCPCS code = H0015) to members of health plans insured through United Behavioral Health (UBH).

1.2. My qualifications as an expert in this area are as follows:
   1.2.1. I have been a Professor of Health Economics in the Department of Health Policy and Management in the School of Public Health at Texas A&M University since 2005. In 2016, I was designated a Regents Professor, a prestigious award for faculty who have provided exemplary contributions to the university in terms of research, education, and community service.
   1.2.2. Previously, I was a Professor at the University of Iowa and the University of Alabama at Birmingham, an Assistant Professor at Arizona State University, and was employed as a manager of health economics and outcomes research for Eli Lilly and Company, where I received the President's Award from Lilly Research Laboratories in 2001.
   1.2.3. In addition to earning a Ph.D. in economics at the University of Houston in 1983, I was a Robert Wood Johnson Foundation Fellow in Healthcare Finance at Johns Hopkins University and the Texas Medical Center during 1987-88. I am an author of more than 170 papers published in peer-reviewed journals, and have broad expertise on cost analysis and cost data, cost-effectiveness analysis, budget impact analysis, and analyses of large administrative claims databases.
   1.2.4. I currently serve as a member of the Editorial Board for *Value in Health*, and was a member of the Editorial Board for the *Journal of Managed Care and Specialty Pharmacy* from 2005-2015. I have served as a peer-reviewer for more than 60 academic journals, and on numerous peer-review boards for the Center for Scientific Review at the National Institutes of Health.
   1.2.5. I mainly worked independently on this report but received some analytic support from staff at Avalon Health Economics, where I serve a Scientific Advisor. Ryan Bresnahan, MS, a Health Economist with Avalon Health Economics (Morristown, NJ), provided computer programming and data analysis support, under my direction and supervision, as well as supervision by John Schneider, PhD, a Principal of Avalon Health Economics. The analyses were conducted using Excel and Stata, Version 17 (College Station, Texas).

1.3. This report is organized as follows:
   1.3.1. An overview of the general issues of the case as it pertains to the purpose of this report, and a brief statement summarizing my overall conclusions.

1.3.2. A description of the claims data provided for analysis, an explanation of the procedures used to organize the data for analysis, and the specific analyses conducted.

1.3.3. A review of the literature pertaining to the impact of provider network inadequacy and "phantom" networks as it relates to an effective lack of access to network providers and the resultant issue of "surprise billing" – a reference to the patient's financial liability for the difference between the out-of-network provider's submitted charge and the maximum allowed charge by health plans. This discussion is based on the literature relating to networks for behavioral health providers in general. No information pertaining to the provider networks specific to this case was available to permit any direct assessment of their adequacy.

1.3.4. A review of the general procedures for determining a "usual, customary and reasonable" ("UCR") charge for a particular procedure, and the general approach used by UBH for HCPCS=H0015.

1.3.5. An assessment of the methodology used by UBH to determine the maximum allowable charge for HCPCS=H0015 for non-network providers utilizing the Viant "usual and customary" ("U&C") charge database. The materials for this review consisted of two "white paper" documents outlining the general methodology used by Viant to estimate (U&C) charges using Medicare data, a PowerPoint file (summarizing the content of the white papers), and a deposition, dated July 14, 2022.

1.3.6. An analysis using the submitted charge data for H0015 in the UBH claims data as an external validation dataset to confirm or contradict the percentile rankings of submitted charge values implied by the Viant UCR percentile values. This is accomplished by comparing Viant UCR percentile charge values (for example, the 60th percentile) to the distribution of submitted charges in the UBH claims data, to determine the percentage of submitted charges for H0015 in the UBH claims that were below the purported 60th percentile of prevailing usual and customary charge for H0015 as estimated by Viant. In a large sample of claims, a substantial divergence between the actual percentage of charges below estimated charge threshold value and the predicted percentage (60 percent) is an indication a problem of either lack of external validity or accuracy in Viant's methodology.

1.3.7. An analysis of claims data for H0015, focusing on the differences between the total submitted charges and the allowed charges, based on percentiles of the U&C charge distribution estimated by Viant, as specified in each insurance client contract (usually the ■th or ■th percentile of U&C charges as estimated by Viant).

1.3.8. Determinations of hypothetical differences in submitted and allowed charges based on an alternative source of UCR values; specifically, the "FAIR Health Benchmark Database" (FAIR Health). Hypothetical allowed charge amounts were calculated using the charge values from the FAIR Health database corresponding to the UCR threshold specified in each insurance client contract. Specifically, to determine the hypothetical allowed charge using the FAIR Health benchmark

data, the charge for the ██th percentile value in the FAIR Health database was used for contracts specifying that a ██th percentile criterion was used, and the ██th percentile value was used for contracts specifying that a ██th percentile criterion was used, and so on. I also estimated hypothetical differences using an 80th percentile threshold applied for all claims, which may be a more "standard" UCR threshold.

1.3.9. The report ends with an overall summary and conclusion.

2. OVERVIEW OF GENERAL ISSUES

2.1. When health plan members obtain services from out-of-network healthcare providers, there is no prior agreement between the health plan and the service provider concerning the level of payment for the service that is acceptable to the health plan.[1] In such cases, the health plan compares the charge submitted by the out-of-network provider for a specific service to a maximum "usual, customary and reasonable" (UCR) charge limit for that same service. The health plan's "allowed" charge is the lessor of the actual submitted charge or the maximum UCR charge limit.

2.2. In general, a UCR charge limit is derived from reference to a benchmark charge database with prevailing patterns of "usual and customary" (U&C) charges that would be typically submitted for the specific service from large samples of the types of facilities that provide the service. For the majority UBH claims available for analysis, the allowed charge for H0015 was based on a reference to percentiles of Viant's profile of estimated prevailing U&C charges for H0015.

2.3. The main objective of the analysis presented in this report is to assess whether the methodology Viant utilizes to generate an estimated profile of U&C charges for H0015 results in an accurate and representative profile of the actual pattern of prevailing usual and customary charges for H0015 among the types of outpatient facilities likely to provide this service to UBH plan members, and if not, assess the potential consequences to plan members of the use of the inaccurate UCR limits in terms of exposure to excess out-of-pocket financial liability.[2]

2.4. The results of my analysis indicate that Viant's methodology is likely to substantially underestimate prevailing usual and customary charges for H0015, resulting in maximum UCR charge limit recommendations that are much too low, which in turn exposes UBH plan members using out-of-network outpatient facilities for H0015 to significant

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[1] See generally M. Mougeot and F. Naegelen, "Medical service provider networks," *Health Econ* 27, no. 8 (2018).

[2] Excess billing has been identified as a substantial problem associated with out-of-network care, which in many cases is unavoidable for the patient. See generally S. A. Friedman et al., "Quantifying Balance Billing for Out-of-Network Behavioral Health Care in Employer-Sponsored Insurance," *Psychiatr Serv* (2022); M. A. Hall et al., "Reducing Unfair Out-of-Network Billing - Integrated Approaches to Protecting Patients," *N Engl J Med* 380, no. 7 (2019); W. Y. Xu et al., "Cost-Sharing Disparities for Out-of-Network Care for Adults With Behavioral Health Conditions," *JAMA Netw Open* 2, no. 11 (2019).

potential excess out-of-pocket costs from balance billing (the difference between the submitted charge and the allowed charge).

3. CLAIMS DATA AND ANALYTIC APPROACH

3.1. Two files containing claims data for extensive outpatient substance use disorder (SUD) treatment services (HCPCS code = H0015) were provided for analysis. One file, which I will call the United Behavioral Health (UBH) file, contained 114,930 records. After dropping 4,160 records where the allowed claim amount was zero, the UBH file contained 110,770 total unique claims.

3.2. The other file, which I will call the MultiPlan file, contained 176,861 records. The MultiPlan file contained more records because it included multiple lines of claims per patient, whereas the UBH file contained date for the cumulative amount of the claim over the episode of treatment. The MultiPlan file contained data for 88,965 unique episodes of treatment for H0015.

3.3. The two files were merged using a unique claim ID number that was identical in both files, with the exception of the addition of a trailing "01" to all claim ID numbers in the UBH file. The merged file contained data for 145,370 claims, of which 54,971 were matched between the UBH and MultiPlan files. After dropping 3,364 claims with zero paid amounts, there were 51,607 claims in the merged claims file.

3.4. Thus, there were a total of 139,902 claims across the two files: 105,270 claims in the UBH file (including 53,663 claims that could not be merged with the MultiPlan claims data), and 86,239 claims in the MultiPlan file (including 34,632 claims than could not be merged with the UBH claims data). Two claims in the UBH file and three claims in MultiPlan file were excluded from the analysis due to missing dates of service. This leaves a total of 105,268 claims in the UBH file and 86,236 claims in the MultiPlan file.

3.5. One of the variables in the UBH file is a "reason code" which indicates the basis for determining the final allowed charge for out-of-network services. The most common reason code for H0015 in the sample of claims in the UBH file is "CY" meaning the allowable charge was determined and the claim finalized using the Viant UCR charge database. An "IX" reason code indicates the final allowable charge was determined through a negotiation process, and not directly based on the Viant UCR charge database (see Table 3-1).

Table 3-1: Frequencies of Finalization Reason Codes in UBH Claims Data

SVC code	Freq.	Percent
CY	51,302	48.73
IX	45,567	43.29
Other	8,399	7.98
Total	105,268	100.00

3.6.   The analysis in this report focuses mainly on claims with a "CY" reason code, because those are the claims that are most relevant to any issues related to implications of the use of the Viant database for UCR values for maximum allowable charge determination.

4.   NETWORK ADEQUACY AND "PHANTOM" NETWORKS

4.1.   Health plans generally provide more favorable terms of coverage for members who obtain services from preferred "in-network" service providers compared to the terms of coverage for services obtained from out-of-network providers. Network "adequacy" is a term used to characterize the size and geographic distribution of the health plan's network of preferred providers as it relates to the likelihood that a member of the plan will be able to actually obtain services from a network provider within a reasonable period of time when the need arises.[3]

4.2.   There is no established national standard definition of network adequacy but there are some regulations and guidelines that vary across states.[4] Generally, adequacy guidelines rely on thresholds of average travel distances for health plan members to in-network providers, or threshold of ratios of health plan members per in-network provider. Networks with values of these metrics that are too "large" (relative to guideline values) are characterized as excessively narrow or inadequate.

4.3.   Whatever standard for adequacy might be applied, provider networks for behavioral health services typically are substantially narrower than for other provider specialties[5] and thus more likely to be inadequate. Part of the reason for low behavioral health provider participation in preferred networks is that the fee schedule the providers would be required to accept to be included in the network represents a more substantial

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[3] Bradley K, Wishon A, Donnelly A, Lechner A. Network Adequacy for Behavioral Health: Existing Standards and Considerations for Designing Standards. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. November 2021 (https://aspe.hhs.gov/sites/default/files/documents/792ca3f8d6ae9a8735a40558f53d16a4/behavioral-health-network-adequacy.pdf).

[4] Pollitz K. Network Adequacy Standards and Enforcement. Kaiser Family Foundation. Feb 04, 2022. (https://www.kff.org/person/karen-pollitz/).

[5] See generally S. H. Busch et al., "Patient Characteristics and Treatment Patterns Among Psychiatrists Who Do Not Accept Private Insurance," *Psychiatr Serv* 70, no. 1 (2019); J. M. Zhu, Y. Zhang, and D. Polsky, "Networks In ACA Marketplaces Are Narrower For Mental Health Care Than For Primary Care," *Health Aff (Millwood)* 36, no. 9 (2017).

"discount" over their usual fees compared to the discount required for network membership by other specialties.[6]

4.4.   The issue of limited acceptance of negotiated fee schedules required for provider network participation is compounded by the problem of "phantom" networks, which refers to the issue that many of the providers listed as in-network providers in health plan provider directories are not actually available to provide services to plan members.[7]

4.5.   There are two main reasons for the phantom network outcome: 1) the health plan's directory of network providers often is out of date, in that many of the listed providers are no longer participating in the network, or 2) the directories often are misleading, in that many of the listed network providers will not agree to treat new patients.[8] The result is that often plan members, after consulting the directory of network providers, will contact a provider they believe to be an in-network provider for needed services, only to discover that the provider is not a network provider. At that point, depending on the type of service required, the plan member may decide they have little option but to obtain services from the non-network provider, rather than renew a search for the elusive network provider.

4.6.   The resulting out-of-pocket liability for the difference between the out-of-network provider's fee and the health plan's allowed free ("balance billing") creates what has been labeled a type of "surprise billing."[9] Specifically, Mark Hall and colleagues[10] argue that "high charges for out-of-network care are demonstrably unfair in two circumstances: when plans have inadequate networks and when patients are treated by providers they don't choose" (p.610). The latter refers to a situation where, for example, a plan member is treated at a network hospital but during the course of treatment at the hospital the patient receives care from a hospital-based physician at the hospital who is not in network (who the patient did not choose). However, plans with "… inadequate networks may force patients to seek out-of-network providers in order to receive appropriate care" (p.610), which also may be considered a type of surprise billing.

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[6] See generally T. L. Mark et al., "Differential Reimbursement of Psychiatric Services by Psychiatrists and Other Medical Providers," *Psychiatr Serv* 69, no. 3 (2018); S. Melek, S. Davenport, and T. Gray, "Addiction and mental health vs. physical health: Analyzing disparities in network use and provider reimbursement rates. ," in *Milliman Research Report* (Milliman, Inc., 2019)..

[7] Goldman H. How phantom networks and other barriers impede progress on mental health insurance reform. *Health Aff*. 2022;41(7):1023–1025.

[8] See generally J. M. Zhu et al., "Phantom Networks: Discrepancies Between Reported And Realized Mental Health Care Access In Oregon Medicaid," ibid. Also see S. H. Busch and K. A. Kyanko, "Incorrect Provider Directories Associated With Out-Of-Network Mental Health Care And Outpatient Surprise Bills," ibid.39, no. 6 (2020).

[9] See generally ; K. R. Chhabra, E. Fuse Brown, and A. M. Ryan, "No More Surprises - New Legislation on Out-of-Network Billing," *N Engl J Med* 384, no. 15 (2021); J. Hoadley and K. Lucia, "The No Surprises Act: A Bipartisan Achievement to Protect Consumers from Unexpected Medical Bills," *J Health Polit Policy Law* 47, no. 1 (2022); R. Reddy and E. L. Duffy, "Congress ends surprise billing: implications for payers, providers, and patients," *Am J Manag Care* 27, no. 8 (2021).

[10] Hall M, et al.

4.7.   According to a recent Milliman research report,[11] patients are much more likely to use out-of-network providers for outpatient behavioral health services than for other medical services. Specifically, as it relates to outpatient substance use disorder (SUD) facility treatment, compared to general medical/surgical outpatient facility treatment, in 2017 outpatient SUD treatment was 8.5 times more likely to have been provided by an out-of-network provider, compared to medical/surgical care. (p.7).

4.8.   None of the data available for review for this opinion provides any direct evidence pertaining to the extent of network adequacy for the specific networks at issue in this case regarding the availability of in-network providers of extensive outpatient SUD treatment services (HCPCS code = H0015).

4.9.   However, it is plausible to infer that frequent use of non-network providers for this type of service by plan members is more likely to reflect their limited ability to secure services from a network provider than a personal preference to use a non-network provider rather than an *available* network provider, despite the substantial additional out-of-pocket financial liability associated with that preference.

4.10. If the use of non-network providers does not, in fact, represent a patient choice, then, as argued by Hall and colleagues,[12] the resulting out-of-pocket financial liability from balance billing for the difference between the provider's usual charge and the allowed charge may be characterized as a form of surprise billing.

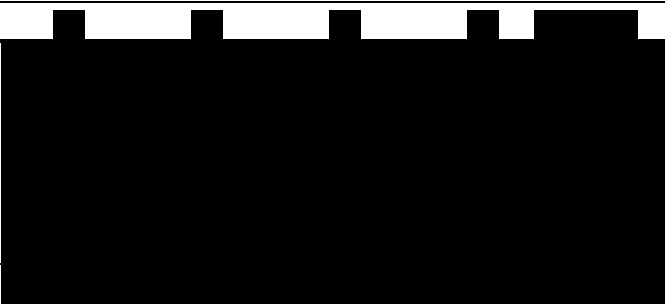5.   USUAL, CUSTOMARY AND REASONABLE CHARGES

5.1.   There are two parts to the usual definition of "usual, customary and reasonable" (UCR) charges. "Usual and customary" charges simply refer to the charges on a provider's chargemaster list, which is a list of standard charges for given services that apply to all patients, without regard to the expected source of payment. "Usual, customary and reasonable" refers to the maximum usual and customary charge a particular payor considers reasonable. This of course varies by payer and by service.

5.2.   The determination of a UCR charge for out-of-network providers is most often based on percentile rankings of usual and customary (U&C) charges in databases containing chargemaster list data from multiple providers or charge data for multiple providers obtained from various sources. The charges for a particular procedure in the U&C charge database are sorted from lowest to highest. A charge value with the 75th percentile rank (for example, $500) indicates that 25% of the prevailing charges for that procedure in the U&C database are higher than $500 and 75% of the charges in the U&C database are lower than $500.

5.3.   A payer typically will designate a specific percentile rank for the U&C charge distribution for a particular procedure (for example, the 80th percentile) to fix the amount of the maximum allowable charge for the procedure (the UCR charge amount).

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[11] Melek S, Davenport S, Gray TJ. *op cit.*, p.7.
[12] Hall M, *op. cit.*, p.610.

5.4.   A recent report provided results of a survey of UCR percentile thresholds employed by state administered or regulated health plans for determining allowed charges for out-of-network providers. The survey results indicated that the UCR amount for a specific service was most often set at the 75th or 80th percentile of charges for comparable services in the same geographic region or market.[13]

5.5.   With respect to UnitedHealth Group, the report includes this quote from an affiliate website: "Affiliates of UnitedHealth Group generally use the 70th or 80th percentile of the FAIR Health Benchmark Databases to calculate how much to pay for out-of-network services of health care professionals, but plan designers and administrators of particular-health care benefit plans may choose different percentiles for use with applicable health care benefit plans." (p.23)

5.6.   However, information provided on the "Out-of-network benefits" page of the UnitedHealth Group's website[14] indicates that a variety of mechanisms are used for determining allowed charges, including "A rate recommended by Viant, an independent third-party vendor that collects and maintains a database of health insurance claims for facilities, then applies proprietary logic to arrive at a recommended rate."

5.7.   The only mention of a specific percentile threshold on the United web page is the use of a 70th percentile UCR value as a means of explaining the concept of a percentile threshold in the context of the FAIR Health Benchmark database.

5.8.   According to the MultiPlan claims data provided for analysis, when reported, the most common percentile threshold applied to the Viant database to determine the allowed charge for H0015 over the entire sample was the ██th percentile, as shown in the table below (Table 5-1).

Table 5-1: Distribution of Percentile Thresholds for Viant UCR Determination, by Year

Year	Percentile					Total
	██	██	██	██	██	Total
2016	██████████████████████████████					16281
2017	██████████████████████████████					16907
2018	██████████████████████████████					16657
2019	██████████████████████████████					17363
2020	██████████████████████████████					12897
2021	██████████████████████████████					6131
Total	██████████████████████████████					86236
%	6.22	83.65	0.00	10.12	32.21	100.00

[13] *Determining Usual, Customary, and Reasonable Charges for Healthcare Services*, Research and Planning Consultants, LP, July 1, 2022. (https://www.rpcconsulting.com/wp-content/uploads/2022/07/Determining-Usual-Customary-and-Reasonable-Charges-for-Healthcare-Service_White-Paper_7-1-2022.pdf)

[14] "Out-of-network benefits." (https://www.uhc.com/legal/information-on-payment-of-out-of-network-benefits)

5.9.   The percentile UCR threshold information is mostly missing from claims occurring before 2018.

5.10. Although the sample size for claims data occurring in 2021 is smaller than the preceding years, there is a clear shift toward greater use of the ■th UCR percentile, rather than the ■th percentile, after 2020. Also note that these are frequencies for the percentile UCR thresholds for the Viant recommended maximum allowable charge in the claims file, and thus includes claims with an ultimate resolution "reason" code other than "CY" (meaning the Viant recommendation was not the final allowable charge determination).

5.11. There is no information reported in the UCR threshold survey report[15] specific to behavioral health insurance plans, and there was no other source I could identify to provide a basis for assessing prevailing industry norms for UCR thresholds used for allowable charge determinations for behavioral health insurance in general or H0015 in particular.

5.12. However, the "surprise" element of the balance billing for out-of-network care may be particularly relevant if the ■th and ■th percentile thresholds most often utilized by UBH plans are not commonly used by other behavioral health insurers. In this context, it may be worth noting that the FAIR Health benchmark database online query interface does not allow the use of a UCR threshold below the 50th percentile, which implies that the use of a ■th percentile UCR criterion is not common.

5.13. Often, service providers will review anticipated out-of-pocket liability for services with patients prior to the provision of services for non-urgent services. If UBH uses an unusually low UCR percentile standard for determining allowable charges, it is possible that neither the service provider nor the patient would have had a reasonable expectation that the allowed charge for the services provided would be as low as it was as subsequently determined to be *prior* to agreement between the patient and provider to utilize the service. This could be especially problematic if other payers use an 80th percentile threshold, which is commonly used in other lines of health insurance. This is part of the reason the result has been characterized as "surprise billing" in the literature.

6.   REVIEW OF VIANT METHODOLOGY

6.1.   The materials available for this review included two "white paper" documents outlining the methodology used by Viant to estimate (U&C) charges using Medicare data, a PowerPoint file (summarizing the content of the white papers), and a deposition, dated July 14, 2022.

6.2.   One of the white papers was dated 2009, and the other was dated September 2018. The content of the two papers appeared to be very similar, so I focused my review mainly on the more recent 2018 white paper, titled "Viant Facility U&C Review: Outpatient

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[15] Research and Planning Consultants, LP, *op. cit.*, pp.1-39.

Review (OPR) Module." The content of the PowerPoint file summarized material presented in the white paper and seemed to be intended mainly as a sales presentation.

6.3. As noted in the 2018 white paper, the purpose of the Viant OPR module is to provide "██" and that this is accomplished "██" (p.2)

6.4. Also on p.2, the following statement appears: "██"

6.5. However, the Standard Analytic Outpatient File only includes charges for *institutional* outpatient providers. According to the National Center for Health Statistics,[16] these include: "Hospital outpatient departments, rural health clinics, renal dialysis facilities, outpatient rehabilitation facilities, comprehensive outpatient rehabilitation facilities, and community mental health centers. … [Other types of] outpatient providers … appear in the Carrier File, not in the Outpatient File." (p.9) Thus, many potential providers of H0015 would not be covered in the charge database used by Viant to determine U&C charges for H0015.

6.6. As noted in the deposition, the Medicare database utilized by Viant typically contains "less than 500" instances of charges for H0015 in a given year. Medicare charges for H0015 procedure are not common mainly because H0015 is not billable under Medicare and because the Standard Analytic Outpatient File does not include charge data for many of the outpatient facilities providing H0015 services.

6.7. While a sample size of 300 or might be considered sufficient to permit a relatively robust determination of percentile ranks of values within a distribution of values in many circumstances, these 300 plus observations are for the entire United States. There is no possibility of providing any guidance in terms of geographic variability in U&C charge distributions for H0015 based solely on charge data for H0015 in Viant's database.

6.8. To address this limitation, Viant made use of their proprietary algorithm to create U&C charge profiles for H0015 that varied geographically. The logic of the algorithm is outlined in broad strokes in the white paper, and a few additional bits of information are revealed in the deposition. However, while the overall conceptual approach is potentially defensible, the methodological details are so sparse and cryptic as to defy any meaningful evaluation of its intrinsic validity as a means of creating previously non-existent charge data. Indeed, if the white paper was a manuscript submitted for publication at a peer-reviewed journal, it most likely would be desk-rejected by the editors (immediately rejected without seeking peer-review) due to the woefully inadequate "methods" section, which would make meaningful peer-review infeasible.

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[16]National Center for Health Statistics, Office of Analysis and Epidemiology. Analytic Issues in Using the Medicare Enrollment and Claims Data Linked to NCHS Surveys. December 2012. Hyattsville, Maryland. (https://www.cdc.gov/nchs/data/datalinkage/cms_medicare_analytic_issues_final.pdf)

6.9.   It is understandable that Viant would want to keep the details of their algorithm to themselves to maintain the commercial value of their product, but that raises the question as to whether any external entity (that is to say, someone other than themselves) has ever evaluated their algorithm or assessed its validity. It certainly is possible that such an external review occurred at some point in the development of the Viant algorithm, but if such a review had occurred, it is surprising that it was not mentioned in the white paper or in their PowerPoint presentation (presumably used for sales).

6.10. Focusing on the broad strokes outlined in the white paper, Viant makes use of charges for other procedures grouped within the same or similar Ambulatory Payment Classification (APC) group to create the previously non-existent charge data for H0015. At a high level, this could make sense, because CMS groups procedures within specific APC groups based on their similarity along some dimensions. Thus, it is plausible to suggest the pattern of charges for one type of procedure within an APC group might be similar to others within the group. This might be confirmed by examining correlations or patterns of change between the target procedure (the procedure with sparse charge data to be imputed) and charge data for the proposed proxy procedures (that would be used to "impute" the sparse charge data) where they overlap. Then, perhaps, some type of renormalization approach could be applied to the proxy charge data (to make the magnitude of its charges compatible with the magnitude of the target procedure charge data) to extrapolate, interpolate or otherwise "impute" the sparse charge data. But these are just guesses about their general approach based on the broad outline; no specific details about methods are revealed.

6.11. There is another potential issue with the use of distributions of imputed charges for H0015 in the Viant OPR Module about which the white paper is mute. Typically, one thinks of a U&C benchmark database as consisting of samples of charges from chargemaster lists obtained from various service providers. It is a sample of actual values of *data*. In the case of Viant's U&C distribution for H0015, it is a distribution of imputed, that is to say, *estimated* charges. These estimated charges are subject to estimation error, and in the case of H0015, where the actual charge data are relatively sparse, the error could be non-trivial. Analytic standard errors are unlikely to be defined, but bootstrapping approaches would seem to be feasible. Again, details are lacking, so it is not clear how, or if, this issue is addressed.

6.12. In terms of Viant's methodology specific to the U&C charge distributions for H0015, in the deposition, APC category ▮▮▮▮ (▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮) is specifically mentioned, and the procedure "▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮" (HCPCS=▮▮▮▮) is cited as a key proxy procedure for H0015. Again, details about how this proxy procedure might have been validated for H0015 are not provided, but it is not intuitively obvious why the charge distributions for a single ▮▮▮▮▮▮▮▮ psychotherapy session would necessarily be similar to the charge distributions for a unit of outpatient SUD therapy assessment lasting a minimum of 3 hours a day as part of multiple-day course of therapy covering a minimum of 3 days (H0015).

7. EXTERNAL VALIDATION

7.1. Even if Viant's methodology is sound internally, there is an issue of external validity. Ultimately, Viant's estimates are based on CMS' Standard Analytic Outpatient File data, but virtually all of the health plan members with UBH claims are too young to be eligible for Medicare, and many do not obtain H0015 services from a hospital outpatient department or any other institutional outpatient provider. Thus, the Viant U&C charge profile for H0015 may not be applicable to many of the patients or providers in the UBH claims data.

7.2. Indirect evidence of the representativeness (or accuracy) of Viant's U&C charge profile for facilities providing H0015 services to UBH clients is available from the UBH claims data. Specifically, if Viant's OPR module reports a 60th percentile charge of $X for H0015, then – if their U&C charge profile is reasonably accurate and representative of the facilities that typically provide these services to UBH clients – in a large sample of submitted claims, approximately 40% of claims would be expected to have submitted charges above $X, and 60% of claims would be expected to have submitted charges below $X. A different outcome is evidence that the sample of claims was either drawn from a different population or that the U&C charge profile database is inaccurate.

7.3. For a sample of submitted charges for H0015 in 51,272 UBH/MultiPlan claims from 2017-2021, 99.0% had submitted charges above the ██th percentile UCR threshold from the Viant module, as shown in Table 7-1. This percentage was close to 100% for the 10,465 claims in 2020.

   7.3.1. Note this sample includes all claims regardless of the "reason" code in the claims, which relates to the determination of the allowed charge. The reason code is not relevant because the analysis here is focused solely on submitted charges relative to the UCR benchmark values from the Viant U&C charge profile database.

Table 7-1: Percentages of Submitted Charges Above/Below the Viant ██th UCR Maximum Charge for H0015, All Claims, 2017-2021

Year	N	Submitted>██th UCR		Submitted<██th UCR	
		#	%	#	%
2017	8,541	8,490	99.4%	51	0.6%
2018	13,079	12,963	99.1%	116	0.9%
2019	13,923	13,768	98.9%	155	1.1%
2020	10,465	10,348	99.9%	117	0.2%
2021	5,264	5,212	99.0%	52	1.0%
Total	51,272	50,781	99.0%	491	1.0%

7.4. This is well beyond any outcome that could be attributed to chance in such a large sample, if the Viant U&C charge profile was an accurate and representative profile of the charges submitted for H0015 by the type of outpatient facilities most often used by UBH clients.

7.5. There also is a concept in measurement processes known as "face validity," which may be defined as follows: "**face validity** [is] a type of **content validity** [verification that the method of measurement actually measures what it is expected to measure], determining the suitability of a given instrument as a source of data on the subject under investigation, using common-sense criteria" (**bold** in original).[17] In other words, in this particular case, given what Viant is purporting to measure (prevailing U&C charges for H0015), is it plausible that their methodology is measuring what they are trying to measure with a reasonable degree of accuracy?

7.6. Face validity assessments are inherently subjective, so at this point it is useful to review what is entailed when an outpatient facility produces the treatment services captured by the HCPCS code H0015:

Definition of H0015: Alcohol and/or drug services; intensive outpatient (treatment program that operates at least 3 hours/day and at least 3 days/week and is based on an individualized treatment plan), including assessment, counseling; crisis intervention, and activity therapies or education (https://hcpcs.codes/h-codes/H0015/).

7.7. Outpatient facility charges for H0015 are defined per unit of assessment (per day) using revenue code 0906.[18] The table below (Table 7-2) reports the maximum allowed charge values per unit of assessment generated from the Viant OPR module based on the ■th percentile of their estimates of prevailing usual and customary outpatient facility charges for H0015, as recovered from the UBH claims data. The table also reports the actual ■th percentile charges from the distribution of the submitted charges per unit of assessment in the UBH claims data.

Table 7-2: Viant Estimated ■th Percentile of U&C Unit Charges for H0015 and ■th Percentile of Submitted Unit Charges for H0015 in UBH Claims Data

| Year	N	Viant ■th UCR (annual avg)	UBH Submitted ■th Percentile
2017	8,541	$150	$1750
2018	13,079	$203	$1800
2019	13,923	$289	$1895
2020	10,465	$278	$1995
2021	5,264	$286	$2000
	51,272	$241	$1855

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[17] face validity. (n.d.) Miller-Keane Encyclopedia and Dictionary of Medicine, Nursing, and Allied Health, Seventh Edition. (2003). Retrieved August 11 2022 from https://medical-dictionary.thefreedictionary.com/face+validity.

[18] https://www.coronishealth.com/blog/intensive-outpatient-program-iop-billing-guidelines-explained/.

7.8. Given that a unit of assessment in the provision of H0015 requires "at least" 3 hours of services during a day, as part of an individualized treatment plan that includes "assessment, counseling; crisis intervention, and activity therapies or education" covering "at least 3 days/week," a face validity assessment relates to the answer to this question: is it plausible to suggest that a "typical" (■th percentile) outpatient facility charged about $240 per unit of assessment on average over this period?

7.9. Face validity assessments are always a matter of opinion, but my opinion is that most individuals who are familiar with the level of charges typically observed in chargemaster lists for healthcare facilities would find the Viant UCR limit estimates for H0015 highly questionable.

8. SUBMITTED VS ALLOWED CHARGES FROM VIANT DATABASE

8.1. The analysis of the UBH/MultiPlan claims data included in this report focuses on two aspects of the differences between the total charge submitted by the out-of-network provider and the final allowed charge in the claims data: 1) the allowed charge as a percentage of the submitted charge; and 2) the dollar difference between the total submitted charge and the allowed charge (the potential balance-bill liability).

8.2. The main analysis focuses on claims with a "CY" reason code, meaning that the final allowed charge was based on the Viant UCR methodology. However, results for claims with an "IX" code (final allowed amount determined by negotiation) also are reported for comparison purposes.

8.3. The frequency distribution for the allowed charge as a percentage of the submitted charge for all "CY" claims in the claims database (N=44,248) is shown in the Figure below. The "bars" are frequency counts within 2.2 percentage point intervals, whereas the line is the kernel density plot (illustrates where frequencies are most concentrated). The mean allowed charge as a percentage of the submitted for H0015 was 14.0%, with a standard deviation of 9.5%, and the median was 11.5%.
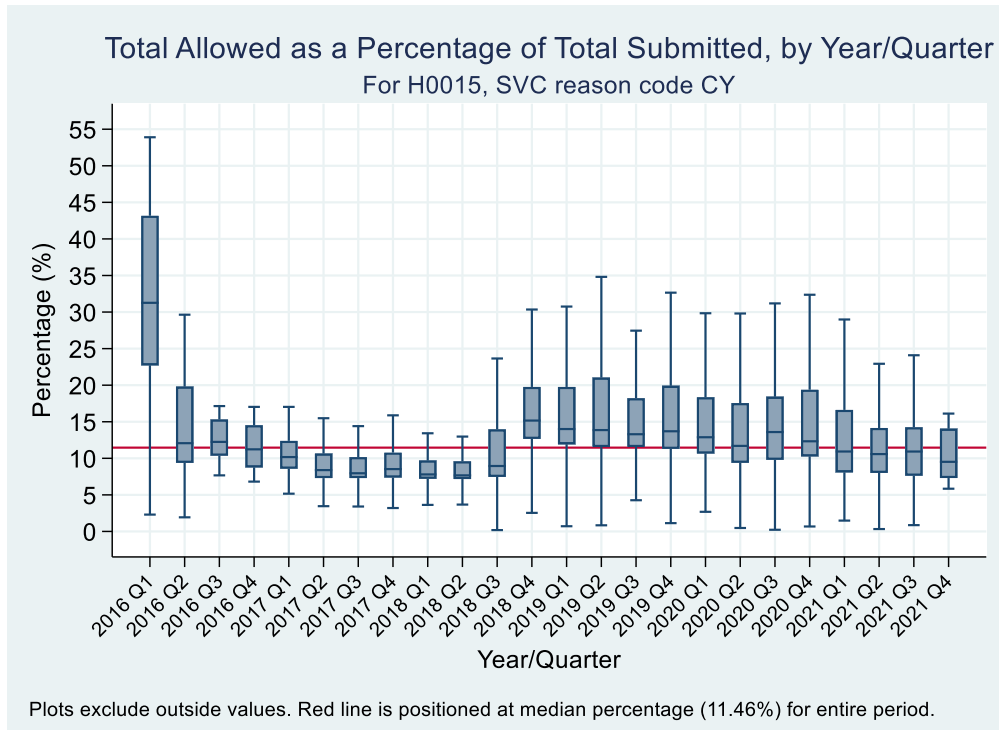
Total Allowed as a Percentage of Total Submitted
For H0015, SVC reason code CY
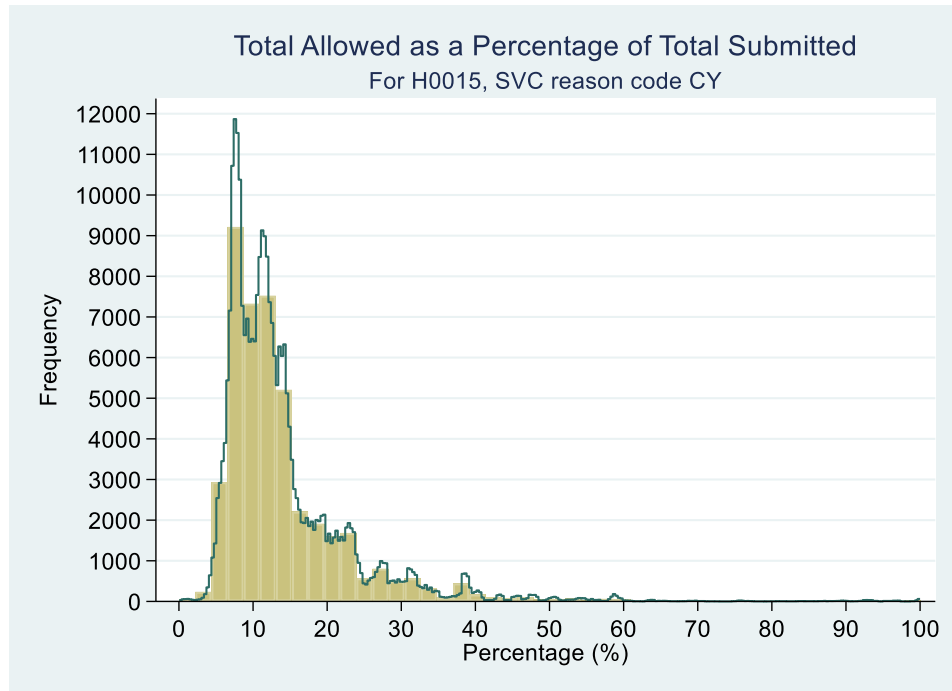
8.4. In contrast, claims with final allowed charges determined by negotiation (reason code "IX," N=34,288) generally had a much higher allowed charge as a percentage of the submitted charge, as shown in the figure below. The mean final allowed charge as a percentage of the submitted charge for H0015 was 58.2%, with a standard deviation of 24.1%, and the median was 70.0%. This indicates that claims that are finalized via negotiation had higher allowed charges than claims finalized using Viant's UCR methodology.

Total Allowed as a Percentage of Total Submitted
For H0015, SVC reason code IX
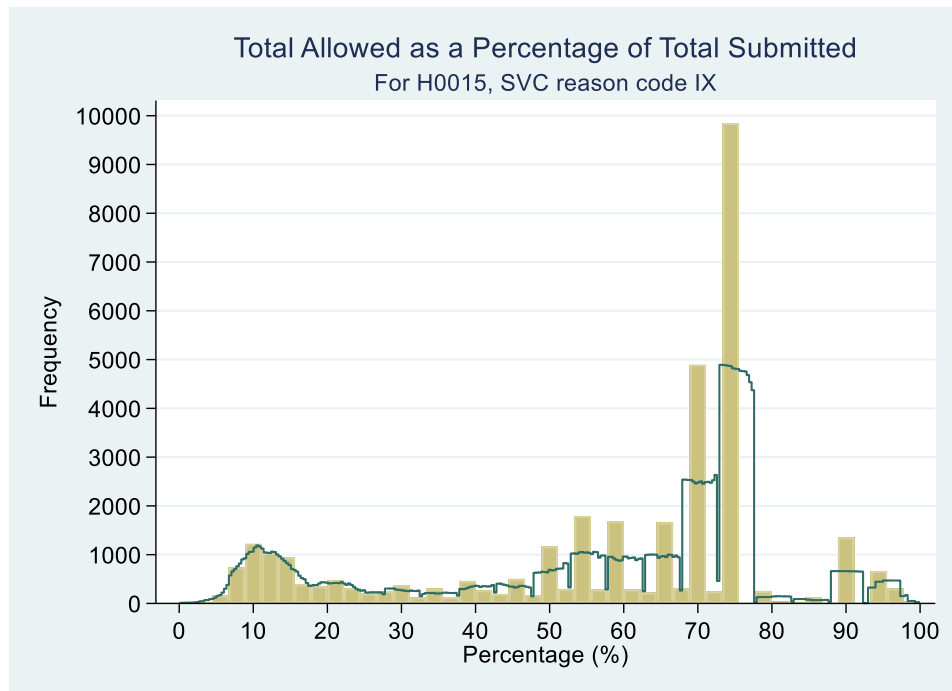
8.5.   The distribution of the dollar difference between the total submitted charge and the final allowed charge for all "CY" claims in the claims database (N=44,248) is shown in the Figure below. The mean dollar difference between the total submitted charge and the final allowed charge for H0015 was $2,751, with a standard deviation of $2,158. The median was $1,884, and the maximum value was $77,721. As noted, these amounts represent additional out-of-pocket financial liability for patients using out-of-network providers from "balance billing." This is in addition to the patients' out-of-pocket payments for any required deductibles or coinsurance applied to the allowed charges.

Absolute Difference Between Total Submitted and Total Allowed
For H0015, SVC reason code CY
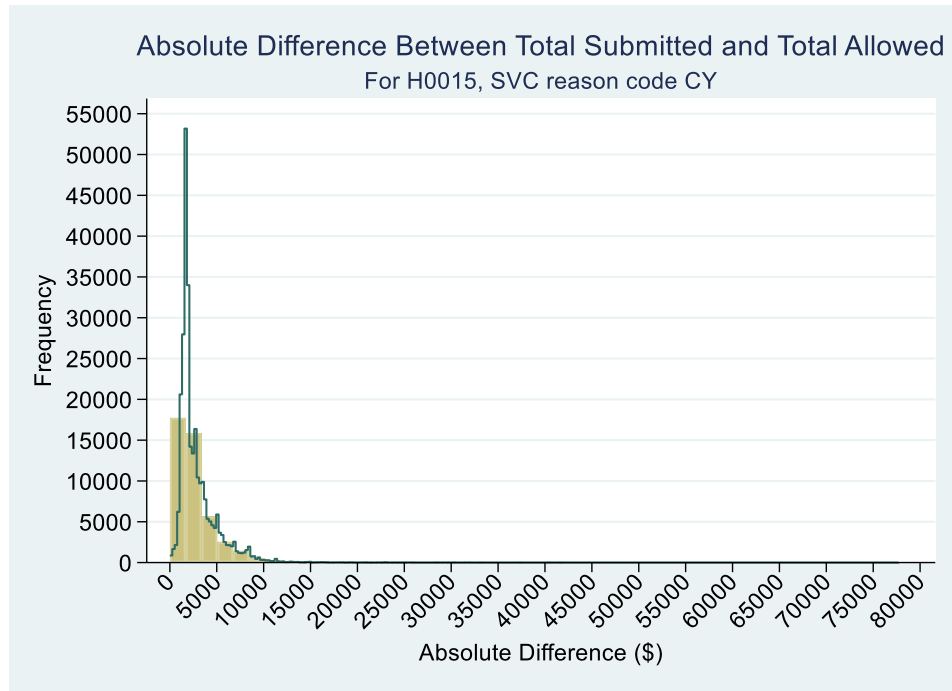
8.6. The Figure shown below reports changes over time in the allowed charges as a percent of submitted charges during the entire sample period using "box and whisker" plots for each quarter. The "box" contains the median value for the quarter (the line in the box), the bottom of the box is the 25th percentile, and the top of the box is the 75th percentile for the quarter. The upper "whisker" extends to include all data points within 1.5 times the interquartile range (difference between the value for the 75th and 25th percentiles) above the upper quartile, and the lower whisker extends to include all data points within 1.5 times the interquartile range below the lower quartile.
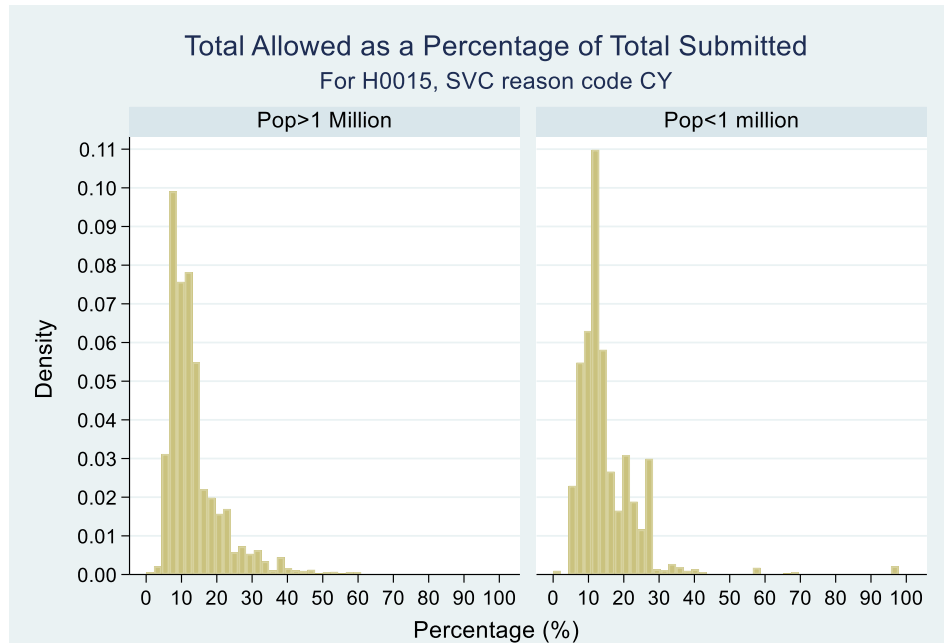
Total Allowed as a Percentage of Total Submitted, by Year/Quarter
For H0015, SVC reason code CY

Plots exclude outside values. Red line is positioned at median percentage (11.46%) for entire period.

8.7.   Sample sizes for all quarters in 2016 are small (N<200), so the discussion focuses in trends from 2017 forward. From Q1 2017, through Q2 2018, the median value of the allowed charge as a percent of total charge was below the overall sample median in each quarter, and the degree of dispersion was relatively muted. However, beginning around Q4 2018, there was a notable increase in the dispersion in values of the allowed charge as a percent of the total charge through subsequent quarters, with a tendency for the median values in each quarter to be above the overall sample median.

8.8.   The frequency distribution for the allowed charge as a percentage of the submitted charge for all "CY" claims across Census regions are shown in the figure below, and descriptive statistics are reported in Table 8-1. The distribution is more severely skewed in the South and West and less severely skewed in the Northeast. The mean final allowed charge as a percentage of the submitted charge for H0015 ranged from 15.4% in the Northeast to 13.0% in the West, and the median ranged from 13.5% in the Northeast to 10.7% in the West.
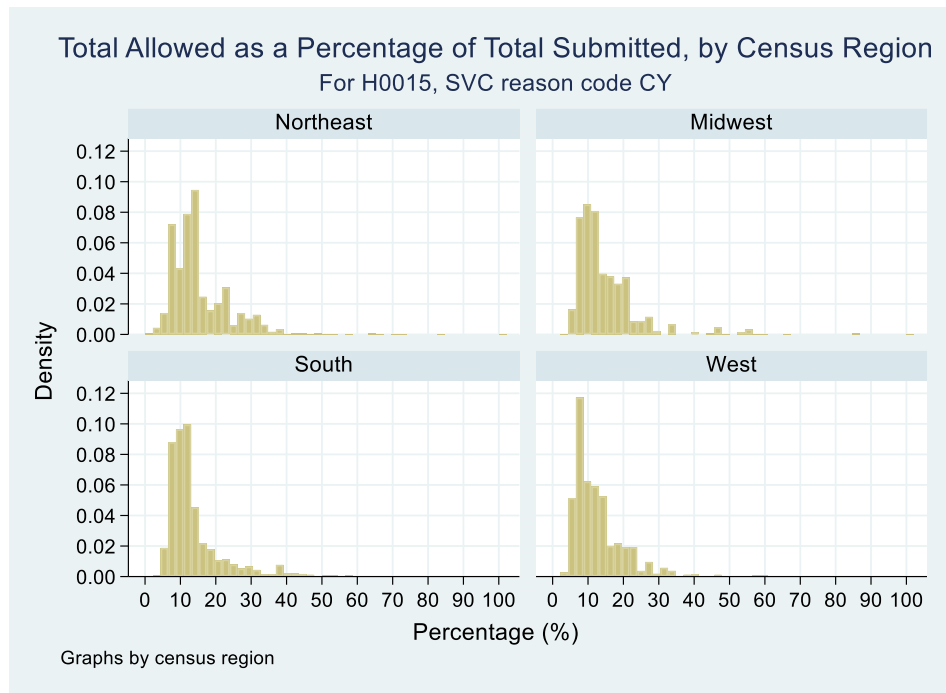
Table 8-1: Allowed Charge as Percentage of Submitted Charge, by Census Region

Census Region	N	Mean	Median	SD	Min	Max
Midwest	1,827	14.809	11.78	9.348	2.877	100
Northeast	6,096	15.452	13.49	8.582	.032	100
South	17,602	14.172	11.37	9.685	.098	100
West	16,227	13.048	10.75	9.037	.049	100

8.9. The frequency distribution for the allowed charge as a percentage of the submitted charge for all "CY" claims across outpatient facilities located in metropolitan versus non-metropolitan areas are shown in the figure below. The definition of metropolitan areas was based on Rural-Urban Continuum Code (RUCC) area designations, with codes "1" and "2" defined as "metropolitan" and all others defined as non-metropolitan.

Total Allowed as a Percentage of Total Submitted
For H0015, SVC reason code CY

8.10. For the outpatient facilities in large metro areas (N=39,392), the mean final allowed charge as a percentage of the submitted charge for H0015 was 13.9%, with a standard deviation of 9.3%, and the median was 11.4%. For the outpatient facilities in smaller urban or rural areas (N=2,367), the mean final allowed charge as a percentage of the submitted charge for H0015 was 15.3%, with a standard deviation of 9.7%, and the median was 12.2%.

9. SUBMITTED VS ALLOWED CHARGES FROM ALTERNATIVE UCR DATABASE

9.1. The purpose of this exercise is to examine the implications of using an alternative to the Viant OCR module for generating UCR estimates for maximum allowable charge determination for out-of-network claims for H0015.

9.2. The alternative to U&C benchmark database used is the FAIR Health Benchmark Database.[19] FAIR Health maintains one of the most widely known and commonly used UCR benchmark databases in the insurance industry.

9.3. The FAIR Health database was used to calculate a hypothetical (counterfactual) maximum allowable charge that would have resulted from using the U&C charge values from the FAIR Health database corresponding to the UCR threshold specified in each insurance client contract in the UBH claims data files. Specifically, to determine the hypothetical maximum allowed charge using the FAIR Health benchmark data, the charge for the ■th percentile value in the FAIR Health database was used for contracts specifying that a ■th percentile UCR criterion was used, and the ■th percentile value was used for contracts specifying that a ■th percentile criterion was used, and so on.

[19] FAIR Health (https://www.fairhealthconsumer.org/#about).

9.4.   The FAIR Health database does not provide benchmark U&C data for H0015 prior to 2020, and it does not report percentile values for U&C ranks below the ■th percentile. As shown previously (5.9), there was a notable shift in the UCR threshold specified in the UBH claims for H0015 from the ■th to the ■th percentile in 2021. Given the absence of a corresponding benchmark value for the ■th percentile in the FAIR Health database, and the absence of data prior to 2020, the hypothetical allowable charge analysis uses claims data for CY2020 only (N=7,738).

9.5.   The hypothetical allowed charge for each "CY" claim in 2020 thus was determined by comparing the UCR value from the FAIR Health database as the maximum allowable charge to the actual submitted charge, and selecting the lower of the two amounts.

9.6.   The ratios of the hypothetical allowed charge to the submitted charge was then calculated, and compared to the ratios of the actual allowed charge to the submitted charge in the 2020 claims data. The distributions of these two ratios are shown in the Figures below:
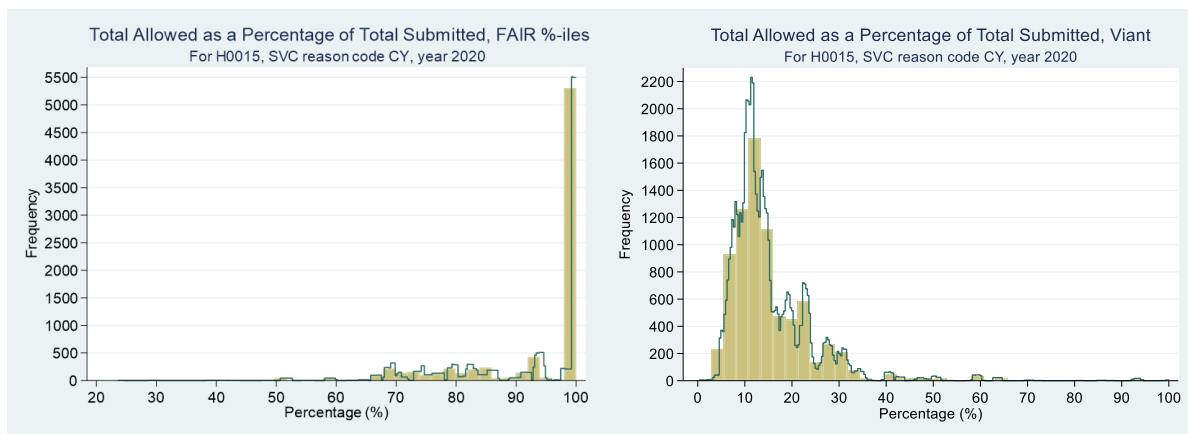
9.7.   Using the FAIR Health benchmark to simulate the allowable charge for all "CY" claims in 2020 (N=7,738), the median of the allowed charge as a percentage of the submitted charge was 100%, meaning that in at least half of the claims, the UCR charge from the FAIR Health database was equal to or above the submitted charge. The overall mean for the ratio in 2020 was 98.3%, with a standard deviation of 10.9%.

9.8.   In contrast, for the same sample of claims with the actual allowable charges assigned via Viant (N=7,738), the median of the allowed charge as a percentage of the submitted charge was 12.5%, meaning that for half of the claims, the submitted charge was at least 8 times greater than the allowed charged as assigned using the UCR benchmark from the Viant system. The mean of the ratio was 15.2%, with a standard deviation 9.3%.

9.9.   Similar comparisons were performed for the differences between submitted and allowed charges (hypothetical and actual). The distributions for the simulated differences using FAIR Health benchmark data and the actual UBH claims data are shown in the Figures below:
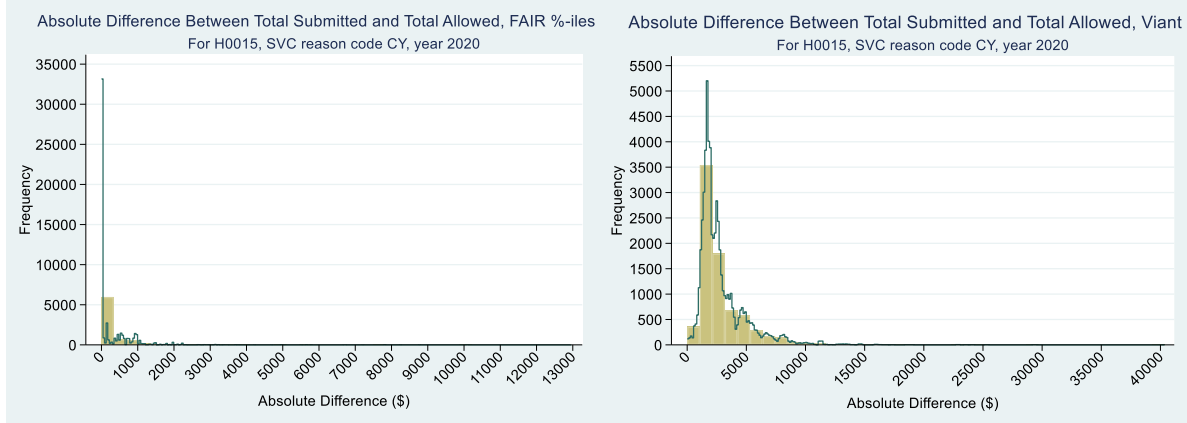
9.10. Using the FAIR Health benchmark to simulate the allowable charge for all "CY" claims in 2020 (N=7,738), the median of the difference between the total submitted charge and the allowable charge was zero (which follows from the median of the ratio of the allowed to submitted charge being equal to one). The mean was $245, with a standard deviation of $598, and a maximum value of $12,951.

9.11. In contrast, for the same sample of claims with the actual allowable charges assigned via Viant (N=7,738), the median of the difference between the total submitted charge and the allowable charge was $2,082, with a mode of $1,779, and a maximum $40,368. The mean of the difference was $2,807, with a standard deviation of $2,021.

9.12. Hypothetical ratios and differences also were estimated using an 80th percentile threshold from the FAIR Health database applied for all claims, which may be a more "standard" UCR threshold. These distributions are shown in the figures below:
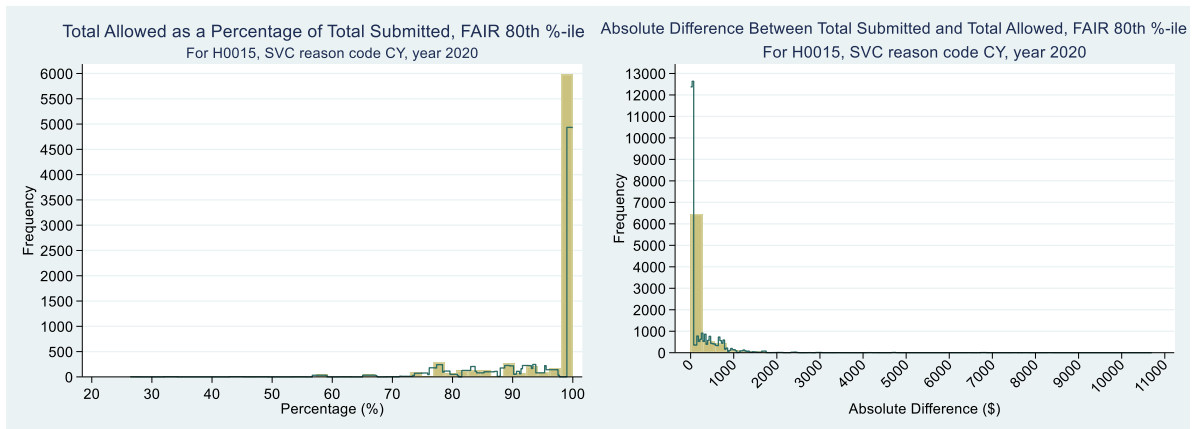
9.13. Using the 80th percentile from the FAIR Health benchmark to simulate the allowable charge for all "CY" claims in 2020 (N=7,738), the median of the allowed charge as a percentage of the submitted charge was 100%, and the mean was 96.5%. The median of the difference between the total submitted charge and the allowable charge was zero, whereas the mean was $142, with a maximum value of $10,701.

9.14. An assessment of the FAIR Health benchmark data is beyond the scope of this report. However, as noted previously (7.2), indirect evidence of the representativeness (or accuracy) FAIR Health's U&C charge profile for facilities providing H0015 services to UBH clients is available from the UBH claims data. Specifically, in a large sample of submitted claims, if an 80th percentile UCR threshold value from the FAIR Health database is specified (approximately $2,200 averaged over 2020), then approximately 20% of claims in 2020 would be expected to have submitted charges above $2,200, and 80% of claims in 2020 would be expected to have submitted charges below $2,200.

9.15. For 10,465 UBH/MultiPlan claims in 2020, 77.2% of the submitted charges were below the FAIR Health 80th percentile threshold, as shown in Table 9-1.

9.15.1. The sample of 2020 claims available for this analysis is larger than the 7,738 sample of claims used for the Viant/FAIR Health comparison analyses, because for this analysis focused on submitted claims amounts, all claims were used regardless of the "reason" code used to determine the allowed charge.

Table 9-1: Percentages of Submitted Charges Above/Below the FAIR Health 80th UCR Maximum Charge for H0015, All Claims, 2020

Year	N	Submitted>80th UCR		Submitted<80th UCR	
		#	%	#	%
2020	10,465	2,388	22.8%	8,077	77.2%

9.16. The actual percentage of claims with a submitted charge below the 80th percentile UCR value in the claims data (77.2%) is very close to the expected percentage in a large sample of claims (80%). Therefore, the FAIR Health benchmark data would appear to provide a reasonably accurate and representative profile of prevailing U&C charges among the types of outpatient facilities providing H0015 services to UBH clients.

10. SUMMARY AND CONCLUSION

10.1. Allowed charges for the majority of claims for out-of-network provision of H0015 in the UBH claims available for analysis were determined using Viant's OPR module to assign the maximum UCR charge.

10.2. Information about methodology used in Viant' OPR module available for review describes their approach at a general, conceptual level but lacks specifics about actual implementation, which prevents any substantive assessment of the methodology. Further, there is no indication that their methodology has ever been externally evaluated or validated.

10.3. Use of Medicare charge data from institutional outpatient facilities raises external validity issues when applying the resultant estimated charges to a non-Medicare population treated at non-institutional outpatient facilities.

10.4. The fact that the UCR percentiles for H0015 charges generated by the Viant OPR module are not even close to the empirical percentiles of submitted charges for H0015 in the UBH claims data provides a strong if indirect indication of substantive deficiencies in Viant's methodology as it pertains to generating a representative profile of prevailing U&C charge for H0015.

10.5. Using the FAIR Health benchmark database to calculate alternate UCR benchmarks for H0015 provides a strong indication that Viant's OPR module produces U&C estimates that substantially underestimate prevailing charges for H0015, resulting in allowable charge recommendations that are substantially below an allowable charge recommendation from a less inaccurate U&C charge profile. These differences are summarized in the table below (Table 10-1):

Table 10-1: Comparison of Submitted and Allowed Charges in 2020 using Viant and FAIR Health Benchmark Charge Databases for H0015 (N=7,738)

	Mean	Median	Mode	Std. Dev.	Max
Allowed as % Submitted					
Viant UCR Values	15.2	12.5	10.8	9.3	100
FAIR Health (same UCR percentiles)	93.8	100.0	100.0	10.8	100
FAIR Health (80th percentile)	96.5	100.0	100.0	7.8	100
Difference Submitted – Allowed Charge					
Viant UCR Values	$2,807	$2,082	$1,779	$2,121	$40,368
FAIR Health (same UCR percentiles)	245	0	0	598	12,951
FAIR Health (80th percentile)	142	0	0	453	10,701

10.6. Assessing quality of FAIR Health benchmark data for H0015 is beyond scope for this report, but FAIR Health is a market leader in producing benchmark data for the insurance industry, and is widely used in other insurance lines within UnitedHealth Group, according to their corporate website.[20] The FAIR Health benchmark data also passes a basic external validity test with respect to submitted charges for H0015 (see 9.16), in contrast to the Viant benchmark data (see 7.3).

10.7. The reliance of Viant's OPR module to assign maximum UCR charge limits based on what are purported to be percentiles of prevailing U&C charges for H0015 was likely to have substantially underestimated the actual percentiles of the prevailing U&C charges for H0015, resulting in a maximum allowable charge that was much lower that it would have been if an accurate and representative UCR benchmark database had been used.

10.8. This error in the assignment of maximum allowable charges for plan members obtaining H0015 from out-of-network providers exposed many of them to significant out-of-pocket financial liability (estimated median value of $2082 in 2020) that would have been avoided in the absence of this error.

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[20] "Out-of-network benefits." *op. cit.*

The opinions and conclusions put forward in this report represent are all within a reasonable degree of certainty in the fields of economics, health economics, biostatistics, epidemiology, and health services research. In addition, I reserve the right to amend and revise this report as additional data and information become available.

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Robert L. Ohsfeldt, PhD

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